

OPERATIONS UPON THE KIDNEY AT THE GERMAN HOSPITAL IN PHILADELPHIA.¹

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FROM the beginning of 1899 to the present date there were performed in the German Hospital, in Philadelphia, thirty-four operations for the fixation of floating or movable kidney; seven for nephrolithiasis; three for pyonephrosis; two for hydronephrosis, and two for sarcoma and nephrotomy or pyelotomy.

NEPHROPEXY.

Of the floating kidney operations there were twenty-nine on the right kidney, four on the left kidney, and one bilateral. Six of the cases also suffered from chronic appendicitis, and this organ was removed at the same time. One case had had an appendectomy performed one year previously. Two cases had coeliotomy performed some years previously for tubal troubles. One case was two months pregnant and recovered without mishap. Thirty-one cases were females. Three cases were males,—one on the left and two on the right kidney. Thirty-two cases recovered. Two cases died (6.7 per cent.), one thirteen days after operation from acute mania, and the other in four days from uræmia. Both of these cases were males.

A blood count was made on seven cases before operation and averaged, hæmoglobin, 60 per cent.; red cells, 3,610,000; white cells, 7960. In no case was a leucocytosis observed.

The patients were in the hospital on an average forty-four days,—excluding the two deaths and three cases still in

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the hospital. Shortest confinement in hospital, twenty-two days; longest, seventy-five days.

Ether was used in all cases and without any difficulty, patients leaving the table without medication. Of the thirty-four cases, thirty-two were operated with the diagnosis of floating or movable kidney. Two cases had the diagnosis made of stone in the kidney. One case negative to X-ray examination, and the other positive; both here and at another hospital. In neither case was a stone found, and the kidney was subsequently anchored.

The patient in all cases was laid on the side opposite the kidney affected, with the knees and thighs flexed and an inflated pillow beneath the loin. The incision was usually about three and a half inches long, extending along the outer margin of the erector spinæ from the twelfth rib towards the crest of the ileum, separating the fibres of the latissimus dorsi and laying bare the lumbar fascia. The fascia was then incised, exposing the perinephric fat and quadratus lumborum muscle, care being taken to avoid the lateral cutaneous branch of the last dorsal nerve. The posterior part of the fatty capsule was resected in all cases and the kidney delivered.

In three cases the true capsule was split from pole to pole, the kidney replaced, and the edges of the capsule united to the muscular layer by three chromicized catgut sutures on either side. Iodoform gauze was packed into the wound cavity and dressings applied.

In twenty-eight cases after delivering the kidney, its true capsule was well scarified with the blade of a scalpel, a strip of white or iodoform gauze was passed around each pole and the kidney replaced. Several pieces of gauze were packed in the wound cavity and the gauze around the poles tied over these. Dry dressing was then applied.

Three cases were operated by Edebohls's method. The kidney was exposed and delivered in the usual manner. The entire fatty capsule was then cut away. The true capsule was divided along the dorsum to the middle of each pole, reflected, and the excess cut away. Four mattress sutures were passed

through the reflected capsule, two on either side, near the poles, and left loose. The kidney was then returned. The eight ends of the four sutures were passed through all the abdominal parietes, except the skin. For the present these sutures are left untied. The muscles and fascia of the wound were then united by interrupted sutures. Then the two ends of each of the four suspension sutures were tied and the skin united over all.

In no case was the peritoneum opened. In no case was the patient very much shocked. In all cases there was a temperature varying from 99° to 100° F. after operation, and lasting from three to twelve days.

In only one case was vomiting present as a sequelæ beyond the usual results of ether narcosis. This case was the one on which a double nephropexy was performed. Vomiting was controlled on the third day by means of exclusive rectal feeding. One case developed a urinary fistula, which healed spontaneously on the fourteenth day. In one case the pelvis of the kidney and ureter was slightly torn during the operation; suturing with Lembert silk sutures resulted in primary union.

In all cases the gauze packing remained untouched for from six to nine days; it was then removed and the wounds mostly healed by granulation. In a few cases the patients were etherized, the edges of the wound pared, and the tissues brought together with silk or worm-gut sutures.

Most of the cases were discharged with a small granulating wound flush with the skin surface and with the kidney seemingly in good condition and position. None of the cases were readmitted.

It will be noticed that none of the cases were anchored by any method requiring sutures to be passed through the parenchyma of the kidney. I have long ago abandoned this method on account both of the danger of a subsequent pyonephrosis and its inadequacy.

In addition to a case in my own experience, two cases were reported by Dr. Heath, of England, in a personal communication to Dr. Keen, of pyonephrosis following kidney suture.

The operation of splitting the true capsule and suturing its edges to the muscular layers of the wound was found to be unsatisfactory for two reasons: first, urine was exuded from the surface of the kidney into the wound and greatly interfered with granulation. In one case contraction of the capsule forced the kidney out of the wound, and it was almost impossible to replace it. In fact, the case recovered, but the kidney is between and not below the muscular layers of the back. In spite of this malposition the patient is perfectly well, and has been since delivered of a child without any difficulty either during labor or afterwards.

The patients operated upon by Edebohls's method were a little more comfortable after operation than those anchored by gauze.

Of the two deaths in this series, the one due to acute mania had probably an alcoholic foundation; the one due to uræmia I am unable to satisfactorily explain, but it is tentatively suggested that perhaps it was due to a compression of the renal vessels and failure of the other kidney to establish compensation.

NEPHROLITHIASIS.

Seven cases diagnosed clinically as stone in the kidney are reported in this group. On two of the cases, operation revealed the absence of a stone. One of these gave a positive shadow to an X-ray examination on two occasions, nine days apart. The other was not X-rayed. Both cases were on the left side. The first case was opened from pole to pole and no stone found whatsoever. Kidney closed and gauze placed around poles, as in nephropexy. Patient very much shocked and was transfused before leaving the table. In four hours marked hæmorrhage took place, the patient was given a little ether, and a complete nephrectomy rapidly performed. Death took place an hour later from shock.

The second case was operated on the same lines exactly, but the patient made a perfect recovery without a complication.

In five cases the diagnosis was confirmed by operation. Three cases were positive to X-ray. Two cases were not

examined by X-ray. Three cases were on the left side. One case was on the right side. One case was bilateral. Four cases were men. One case was a woman. All five cases recovered.

In two cases the stone occupied the pelvis of the left kidney. After the usual incision, the pelvis was cut open, the stones removed, and the wound closed with Lembert sutures. Both cases were anchored with gauze as in nephropexy, and both made a complete and uncomplicated recovery. Discharged on the twenty-first and forty-first days respectively, with small granulating wound.

In two cases, after the usual incision, the kidney was found not only to be filled with stones, but also the subject of pyonephrosis.

First Case.—Peritoneum opened in delivering the kidney, which was markedly adherent, closed immediately with catgut. Ureter ligated as low as possible, the vein and artery tied separately, and the kidney removed. The wound cavity packed with gauze and allowed to heal by granulation. Patient made a nice recovery, and was discharged in thirty-one days, with a small granulating wound.

Second Case.—Precisely as above, but peritoneum was not opened. Discharged in thirty-nine days with a small granulating wound.

One case bilateral.

June 4, 1900.—Incision as in nephropexy (left side), kidney opened from pole to pole, and a number of stones found in the pelvis and calices. All cleaned out and kidney brought together, packed, and anchored as in gauze nephropexy. The patient suffered very little from shock, but shortly became very septic, and several hæmorrhages took place from the kidney. Seventeen days after operation a stone was passed out of the wound. Eighteen days after operation the patient was re-etherized and the kidney (left) rapidly removed, and the cavity packed with gauze. The wound healed by granulation and, with the exception of considerable vesical trouble, the patient did very well. Improving gradually in weight and strength, and on discharge was able to walk about.

Exactly nine months later the patient was admitted with all

the symptoms of stone in the right kidney. Operation under chloroform revealed a hyponephrosis due to a stone in the pelvis blocking the ureter. Two large incisions were made through the cortex and six calculi removed from the pelvis. Incision was packed with gauze. During the next six weeks the patient was dressed every other day, and nineteen stones were discharged through the wound during this time. There were no uræmic symptoms, and the urine was passed both through the urethra and through a sinus leading to the kidney. Discharged nine weeks after operation with a urinary fistula, but in good general health.

NEPHRECTOMY FOR PYONEPHROSIS.

CASE I.—Female; right side. Incision from crest of ileum to anterior border of quadratus, nine inches long. Kidney delivered and aspirated, vessels ligated separately. Ureter ligated and stitched in wound. Kidney removed. Peritoneum not opened. Wound closed with silk sutures, with a rubber tube for drainage.

Patient became very weak and anæmic after operation, but recovered after a protracted convalescence. Discharged four months after operation.

CASE II.—Female; right side. Operation the same as in preceding case, except that the peritoneum was accidentally opened, and immediately closed. Patient still in hospital, with a clean granulating wound and in good condition, twenty-eight days after operation.

CASE III.—An X-ray made on this case showed a distinct shadow over the right kidney. *Operation.*—Long lumbar incision, and a second at right angles to the first going up over the two lower ribs, the ends of these were cut off with forceps. The kidney was enlarged and firmly adherent to the peritoneum. It was cystic and filled with pus. In delivering the kidney, the peritoneum was opened and immediately closed with catgut. The kidney was then removed, after ligating the artery, vein, and ureter, separately; wound packed with gauze and partially closed. Cultures made from purulent foci in kidney remained sterile. Patient was discharged five weeks after operation, completely recovered.

NEPHRECTOMY FOR HYDRONEPHROSIS.

CASE I.—Female; right side. Incision extending from right lumbar muscle over and beyond the anterior superior spine of the

ileum, with ileum about one and one-half inches above it. Tumor mass found as large as an adult head. In attempting delivery, mass was ruptured, and about 1000 cubic centimetres of cloudy amber fluid without urinary odor escaped. Sac wall and remains of the kidney were delivered, vessels and ureter ligated, and mass excised. Extremities of the wound closed, gauze drainage in the centre. Patient died on the second day of uræmia.

CASE II.—Male; right side. Incision as in first case. Kidney delivered and aspirated, vessels ligated separately. Ureter ligated and stitched in abdominal wound. Kidney removed, peritoneum not opened. Wound sewed up with silk sutures, using a rubber tube for drainage. Wound healed by first intention. Patient never had a bad symptom. Discharged three weeks after operation.

NEPHRECTOMY FOR SARCOMA.

CASE I.—Female; right side. Incision through right rectus, nine inches long, growth seen to be retroperitoneal and attached to kidney. Parietal peritoneum clamped to mesocolon; growth enucleated, considerable bleeding in doing so. Tumor about the size of a child's head and was lobulated. Parietal peritoneum was then stitched to mesocolon (ascending) and gauze packed into the cavity. Patient was severely shocked and died three days after operation.

CASE II.—Male; left side. *Operation.*—Patient placed on right side, resting on an air-cushion. Incision made extending from the angle between the erector spinæ and the last rib, obliquely to the anterior superior spine of the ileum. All flat muscles were divided down to the lumbar fascia; this was divided, exposing the perirenal fat. Perirenal fat picked up with forceps and divided, and pressure anteriorly brought the kidney mass into the wound. Dissection round the kidney mass of the perirenal fat was carried on with index-finger. Many adhesions were found, especially at the upper pole. Terrific hæmorrhage occurred at all points, which was very difficult to control on account of size of vessels. Thought best to try to tie the renal vessels as soon as possible. Upper angle of the wound was packed with gauze as tight as possible, to check hæmorrhage, and dissection of kidney mass attempted from the lower end. The ureter was first exposed in a dense mass of adhesions. It was ligated and

cut. Further dissection exposed the renal vessels, which were clamped and cut. A dense mass of adhesions was encountered at the upper end. It was adherent at all points. The broken-down tissue resembled wet, coarse sawdust. The kidney was now removed and as much of the tissue as possible was scraped away from all adjacent structures; all bleeding points ligated. The kidney mass was about the size of a very large cocoanut, of firm consistency at the lower pole, but friable and spongy at the upper. The wound was then packed with large pieces of iodoform gauze, and partially closed with silk sutures. Before this could be done the patient went into collapse, almost pulseless, with shallow breathing. Hypodermics of atropine and strychnine were given and intravenous injection of hot saline was administered. Patient reacted slightly before leaving the operating-room. Dry dressing applied. At no time was the peritoneum opened.

CONGENITAL ABSENCE OF LEFT KIDNEY; OBSTRUCTION OF RIGHT URETER BY STONE.

Male; sixty-five years old. Suffered from severe abdominal cramps one week before admission, which yielded to mustard-plaster treatment. Two days before admission was suddenly taken sick with severe pain in right flank, testicles, and penis, suppression of urine, which continued until operation. Examination showed marked tenderness in the region of the right kidney, bladder empty.

Incision was made in the right flank parallel to the crest of the ileum extending round in front nearly to Poupart's ligament; the kidney delivered and ureter found much distended with urine. The kidney was about twice the normal size and very dark. On account of the fatness of the patient and his bad condition, a very thorough exploration of the ureter could not be made. The pelvis of the kidney was opened and a rubber drainage tube put in, coming out through the back; gauze was packed in and the incision partly closed with silkworm-gut sutures. Patient died in three days from uræmia. At post-mortem the left kidney was found wanting, the left ureter being represented only by a fibrous cord extending down through the inguinal ring to the scrotum. A small stone was found blocking the right ureter near the bladder.